The various plans of treatment laid down in works on the practice of medicine were tried without a very favourable result. Bloodletting and the general antiphlogistic treatment were tried, but abandoned. Opium and stimulants were a little more successful. Opium, in the cold stage, I consider one of our best remedies; large doses are well borne, and may be given at short intervals; I have given one-fourth of a grain of morphia every two hours for twenty-four to a boy twelve years old with good results. It should be given for the effect, and without regard to quantity. Quinia was used in several cases, but without benefit. Iodide of potassa was used at first, but abandoned. Stimulating applications to spine are useful during the cold stage. I used equal portions of aqua ammonia and tincture of capsicum rubbed over the whole length of the spine.

Permanganate of potash was beneficial, given in doses of from one-eighth to one-fourth of a grain frequently repeated. During the stage of excitement arterial sedatives were used, and of these the best is tincture of aconite root in large doses; veratrum viride is a valuable remedy of this class. In the chronic cases, muriate of ammonia and permanganate of potash are the medicines upon which I place most reliance. Bleeding is hurtful in most cases. To relieve the violent neuralgic pains in different parts of the body liniments containing chloroform and aconite, dry cupping, and friction with mustard and vinegar have usually been efficient. Intercurrent affections were treated on general principles, taking care always to sustain the powers of life by a sufficiency of liquid nutriment given in small quantities at short intervals, and when there was much debility alcoholic stimulants were used in quantities proportioned to the wants of the patient.

Under the most judicious plans of treatment the majority of cases proved fatal, and often the results of the same treatment in different cases were very different.

ART. IX.—*On the Changes of Type of Diseases.* By R. E. HAUGHTON, M. D., of Richmond, Ind.

CHANGE is written on all things temporal. If we look back but a few years, we shall find that very remarkable changes have taken place in the history of disease and its treatment—that the forms of disease which were called sthenic, attended as they were by a high grade of arterial excitement, are now superseded by the asthenic forms, in which all the symptoms are modified by a strong tendency to general debility from the very commencement of disease. By the sthenic condition is understood the inflammatory reaction or excitement, attended by a burning skin, injected eyes, intense headache, flushed face, wild delirium, and throbbing pulse; in which conditions the physicians of former days used the lancet freely till relief was obtained. This condition has been replaced by the asthenic, which has manifested itself more fully since the advent of cholera in this country—1832, 1853. In this asthenic type of disease, debility of the heart's action appears from the first, and often requires active stimulation to support the patient, conjoined with nutrients. This is no delusion. Why is this remarkable change, and do such changes present themselves to us in our visits to the bedside? The history of medicine in the past fifty years affords ample evidence that medical opinion and practice have passed through radical changes, and that the treatment of disease, as we see it to-day, is vastly different from what it was at the former period.

Contrary to this view, however, Dr. John Hughes Bennett, of Edinburgh, in a work entitled "Clinical Lectures on the Principles and Practice of Medicine," declares that the diminished employment of blood-letting and other antiphlogistic remedies of late years does not arise from a change in the type of disease; but that the present advanced state of pathology and diagnosis has proved the former treatment to be erroneous; and he therefore concludes that inflammation is the *same now* that it was in former years. That antiphlogistic treatment is not used to the same extent, or is hardly used at all in the forms of disease of to-day, is not controverted; and that the indications we find most generally do not demand its use, is quite as well established. That medical men of to-day treat fevers and inflammations by agencies which they had never thought to use thirty and forty years ago, and are still the successful physicians they were, is not to be doubted, and it seems to me that were we to deplete the diseases of this day as was done formerly, we should lose many more of our patients; proving so far that depletion could not be borne now as it was then. To sustain the proposition of a change in the types of disease it is only necessary to examine the history of disease in our country during the various cycles of the last half century.

In looking back as far as 1807, and from that time to 1820, we find an epidemic of typhus fever prevailing, often complicated by pneumonia, which Dr. Wood says was erroneously called pneumonia typhoides, as it was a complication of epidemic typhus fever. The treatment, both in fevers and inflammations was at the time of the irruption of the typhous epidemics decidedly antiphlogistic; yet when a change occurred in the type of the disease as it did in 1812–13, the consequences of such treatment were fatal. In Philadelphia the celebrated Dr. Parrish, a young man, at that time, saw these unfortunate results of treatment, and treated the epidemic by active stimulation and support, and with the result of saving nearly all his cases. "So fatal was the treatment by copious bleeding that professional as well as popular opinion received a set against it." (Dr. Wood.)

Here at once was a decided change in treatment, corresponding to the type of disease which had most evidently changed from the more sthenic and prevailing types to one most decidedly asthenic, and which modified all the then prevailing forms of disease. The history of the various typhous epidemics shows that typhoid and not typhus fever has been the prevailing fever of the New England States, and though not confined to such geographical limits, that fever was not known in the Western States. The malarious types of fever were alone known in the early settlement of the country, except only isolated cases of typhoid fever occurring in persons who had come from the East. For twenty years back, epidemics of typhoid fever have prevailed over large districts in the West with considerable severity, but a diminishing mortality. When I commenced practice, in 1850, the first epidemic of typhoid fever was prevailing in a certain locality in Indiana, and since that time I have seen three epidemics of the same disease. Malarious fevers also prevail to a certain extent every year; bilious fever being regarded the common type of fever in the autumn. As time has passed on, bilious fever has become rare in the same region, and intermittent fever as well as remittent, when they occur, are influenced by some depressing agency, which sometimes converts a truly periodical fever into a continued form. An opinion consequently prevails that typhoid fever has a tendency to replace intermittents and remittents, as these diseases are growing more unfrequent, and typhoid fever is now in many places in the West the predominant fever. Here we have a blending of types presented to us, beginning as malarial and ending in typhoid; to such blendings of types Dr. Woodward has given the name of typho-malarial, which exactly expresses what we observe in the history of such cases. Dr. Austin Flint, now of New York city, says:—

> "That typhoid fever has to a great extent superseded the remittent form, and in a brief enumeration of the distinctive traits of remittent, typhus, and typhoid, published by us in this journal [*Buffalo Med.*], we mentioned this as a sentiment generally entertained by the profession in this region." He says further: "We think there cannot be a doubt that a striking change has taken place within a few years past, and that typhoid fever from having been, to say the least, of unfrequent occurrence, has become frequent, and is becoming more so, remittents diminishing in frequency after the same ratio."

These views are corroborated by some conclusions to which M. Boudin has arrived more recently. He says "there exists an antagonism between typhoid fever on the one hand and intermittent fever and phthisis on the other." In the ten years which are past, and in which we have been presented with an ever-varying succession of disease, the typhous element seems to have predominated, and to control both the inflammatory and febrile types of disease, complicated, as these last frequently are, by some local inflammation, in all of which prostration is the common attendant. Since the advent of epidemic cholera in 1832, up to the present time, we have had conditions in disease which forbid the treatment so commonly resorted to prior to that period. Before 1832 the antiphlogistic treatment was practised; but soon afterwards cathartics were found to produce great disturbance where formerly they were used with benefit; and even to this day they are not nearly so much needed, nor even indicated, except those of the very mildest kinds. Intestinal mucous irritation is set up as the result of such practice, and prostration soon manifests itself. Blood-letting is abandoned, except by men who are averse to improvement, and who shut their eyes to the results of a more enlightened experience, based upon the changes in the types of disease. Another proof of the changes in the types of disease is afforded by some of our epidemics during the last five years. We have had, since 1860, an epidemic of diphtheria, and to some extent of erysipelas, also cerebro-spinal meningitis or cerebro-spinal fever, which we have found exhibiting evidences of prostration; and the last disease I have seen begin as cerebro-spinal in all its manifestations, and terminate in well-marked typhoid fever; the spinal and inflammatory symptoms subsiding, and the patient recovering slowly, as from typhoid fever. There was the same redness of tongue, the tender and tympanitic abdomen, the diarrhœa and rose-coloured spots of typhoid fever, not those of spotted fever so-called. Dr. Pierce, of Mechanicsburg, Ohio, in a paper published in the *Lancet and Observer*, in speaking of an epidemic of typhus, typhoid, and cerebro-spinal fever occurring in his community, discusses the community of their origin and identity of character. I have no doubt of the truth of his observations, as I know very well in this region also that cerebro-spinal fever frequently merges into a genuine typhoid fever, and I believe that there is a community of origin, cause and effect, bearing their true relations in these three forms of disease, capable of being converted from one into the other, or, in other words, convertible forms of disease. It is true that with us we do not see the genuine typhus, as described by British writers; but it is believed that cerebro-spinal fever is a modification of the genuine typhus, and we have typhous manifestations which are known to belong to the group of typhous diseases. Dr. Kersey, writing on the same subject, says, "of cases he had seen, reproducing, in almost every feature, the mental impression made a quarter of a century ago by watching the progress of a few cases of typhus or ship fever." These are not sthenic but asthenic diseases, and require a very different treatment from what was used when disease presented high arterial excitement. According to Dr. Hughes Bennett, who maintains that inflammation is always the same, the changes presented when disease is left to run its course undisturbed cannot be explained, for cases then recovered under the treatment which if applied now would prove certainly fatal in a large majority of cases. This is accepted as a fact, and I am disposed to think that there is another element not sufficiently taken into account. The force of the circulation has been carefully estimated in sthenic and asthenic diseases. But, if inflammation is always the same, why do we find now such complete prostration attendant, if the causes, conditions, and elements which enter into it under all circumstances are precisely the same. In the sthenic forms, when bleeding and purging were freely practised, such rapid and overwhelming debility did not occur as do now, when we have asthenic forms of disease. The reason for such differences is, I think, to be found in the influence which the nervous system exerts upon the type of the disease and its force. All diseases, except traumatic ones and those produced by poisons, have their first lesion in the nervous system. Lesion of enervation, as Dr. Southwood Smith wrote, so I regard the first lesion as that of the nervous system, and as the agency, or poison, or whatever it may be, which produces disease, may exert more energy or power in one case, so we may have the ever-varying conditions of sthenic or asthenic impressed by the vital forces as they are influenced by a more or less violent and depressing cause. Lesion of circulation, lesion of nutrition and secretion next in their relations are disturbed, and there occurs just what we are witnessing as the epidemics come and depart. The testimony of morbid anatomy is adduced by Prof. Stokes, who says:—

> "Having had full opportunity of seeing and examining the recent examples of diseased structure, amounting to nearly 3,000 specimens, the products of the various hospitals of this city (Dublin), and this result is remarkable that the specimens of acute disease have had a very different character from that commonly met with in Dublin, between 1820 and 1830. As a general rule, these specimens all showed appearances indicative of a less degree, of pathologic energy."

This is sufficiently full to indicate changes in the vital conditions which influence the type of disease. Disease is but a condition of tissues, a departure from their physiological state, and there is some rule which acts, not only to develop but to control, that tissue in its departure from its normal standard. Now either the vital endowments of the tissues are changed, or there would be no change in the tissues examined after death, if the varied influences which operate to produce and change disease were the same as observed under the sthenic types. But these vital endowments are changed, and the pathologic changes are not the same. In asthenic inflammations, the effusions were often copious and hemorrhagic; the inflamed surface of the tissue highly reddened; while now in pneumonia, as I saw in a recent case, the lung was of a purple or livid colour, *not red*, the effused lymph a grayish pasty mass, forming weak adhesions to adjacent surfaces; in other places, owing to the feeble energy of the inflammation, the effused products were in a pulpy or semi-fluid condition, having a strong tendency to form pus. This was in a case of pneumonia, evidently of the asthenic form, in which, by vigorous stimulation and support, I could not change the inflammation or its results. The same story is true of serous membranes. The firm bands of adhesion which used to be met with in pleurisy, in the peritoneum and other serous tissues, are not found now, but in their place are seen serous or bloody effusions; the lymph which was deposited does not become organized, but is thin and somewhat transparent, and collected into the serous cavities, thus producing embarrassing accumulations of fluid, with no tendency to be removed, but increasing as the disease progresses, impairing the vital tone of the patient. As Dr. Stokes says again, serous, or sero-fibrinous effusions tinged with coloring matter, replaces the old results of sthenic inflammations, and tallies exactly with the change in the vital character of the disease. Now let us look at the results of practice and the influence of remedial agencies under the conditions of disease, and see if there is not something which influences the same results. Formerly, when the more sthenic forms of disease prevailed in the country, blood-letting, cathartics, emetics, nauseants, and a system of starvation having a decidedly reducing effects, were followed in the treatment of fevers and inflammations, and there were no alarming symptoms; but after a long, protracted sickness, slow convalescence was eventually established. This was regarded as success, and the patient as eminently fortunate. At various periods of time, we have seen less and less of the sthenic types of disease, and as far back as 1842, the typhous element, the zymotic causes of disease began to invade the Western and Southwestern States, and the periodical fevers and inflammations governed by the influence of a periodical law, were gradually displaced by a type of adynamic fever, and the inflammations when they occurred, either as original diseases or as complications of the fevers, were not influenced or successfully treated as disease had been before. Quinia, which was known as the great agent in the cure of periodic fevers, did not cut short or benefit these diseases, but was often positively pernicious; mercury was seldom required, though often used to the serious detriment of the patient. Purgations sometimes induced an early prostration, as did also tartrate of antimony, as used in the typhoid pneumonia. Sometimes in the early stages of these cases, the depleting plan was resorted to; but when prostration was observed, the whole plan was changed to stimulating and supporting—often too late for success. The idea of change of type did not, I conceive, influence the minds of the profession sufficiently to lead them to estimate the vital forces as acted on by a zymotic poison, absolutely depressing in its influence on all. This, as well as not knowing the full value of remedies, in their proper time and place, was a great defect.

The first epidemics of typhoid fever and typhoid pneumonia were very fatal, in many localities in the West; but experience has improved, and the influences which operate to produce certain forms of disease being better known, treatment is more successful than formerly. These important changes are not due to an improved pathology, but changes of treatment, necessitated by the changes in the type of disease. As evidence of the change which the type of fever undergoes, Dr. Tweedie's report for the year 1845 shows the low form of disease by the large quantity of stimulants demanded. "He states, that in the epidemic of 1843, when eleven hundred patients were admitted into the London Fever Hospital, the quantity of wine administered was about eighteen hundred ounces, and sixty ounces of brandy, while the next year, not half the number were admitted, and they consumed fourteen hundred ounces of wine and seventy-six ounces of brandy, besides other stimulants."

This evidence goes far to show that medical men had observed the change, and were acting upon that knowledge; and that, also, this change of type did not belong to the Western World, but had been observed in Europe. Now Dr. Bennett declares that the diminished employment of blood-letting and other antiphlogistic remedies, of late years, does not arise from a change of type, as supposed by Drs. Allison, Christison, Watson, Stokes, and many of the profession, but that the present advanced state of pathology and diagnosis has proved the former treatment to be opposed to a sound pathology. This proposition does not explain the fact that men scattered over the Western States, isolated as they often are, have not improved their knowledge of inflammations and the treatment of them, until the failure of remedies aroused them to the necessity of a change in the treatment, to meet the existing conditions of disease. We admit progress, but not in the same sense with Dr. Bennett. Dr. Parrish was not a generation ahead of his cotemporaries, when he adopted the stimulant plan of treatment in the epidemic typhus of Philadelphia in 1812 and 1813. It was not his superior knowledge of the forces of disease, but the observation of facts, combined with tact, which built for him a reputation. So it has ever been with medical men. The recognition of a medical fact and its adoption leads to success, where failure stood in the way before. This is the progress which medicine has made through past years, and each successive generation becomes the depositories of the experience of the past for the benefit of the future. To be satisfied that changes in the types of disease do occur, we have access to all the sources of evidence, as to the nature of disease by its study in the past, as well as the present, and in the pathological changes observed after death, and in the effects of therapeutic agencies. We may further quote the evidence of eminent medical men upon this question.

Dr. Watson says: "I am firmly persuaded by my own observations, and by the records of medicine, that there are waves of time, through which the sthenic and asthenic characters of disease prevail in succession, and that we are at present living in one of its adynamic phases." Dr. Stokes says, after summing up all the sources of evidence upon the nature of disease: "Looking at the question from any one of the sources of evidence, we come to the conclusion that the doctrine of a change of type is a true one, while if we take all the facts, and observe how they point to the same conclusion, we must, to use the words of Dr. Alison, 'Accept the change of type as an ultimate fact in the history of diseases.'" It seems to be true, that of the very many causes of disease which I have no doubt have power to develop new forms or types, of which we may have had but little or no experience, that they travel from one portion of the earth to another, and generally from east to west, around the world, but simply proves what Dr. Watson has said, that there are waves of time, and I had like to have added periodic time, in which different types of disease prevail. These causes are evidently capable of inducing disease, and of influencing the character and type of disease, so that all forms of disease exhibit a certain degree of conformity to a controlling law, which is the law of the epidemic disease. "Dr. Robert Lawson, from investigations which are published, deduces a law, showing that a series of causes originate, or become apparent in the southern hemisphere, and travel northward with much regularity." This influence he designates more properly "pandemic" than "epidemic," and in conformity again with the language of Dr. Watson, "he calls these successive waves pandemic waves." Waves of disease upon the waves of time, and there is no doubt that very wide and radical changes have been presented in the successive waves of disease, from the higher and more active types to the lower or more adynamic types. Again, the same writer says: "These casual eruptions of *new forms* of disease have always taken place during the passage of a pandemic wave, and therefore concludes that this cause determines the occurrence of disease where it passes, while the forms or types are influenced by the meteorological, malarial-hygienic or social conditions of the population. He admits, however, that the facts of disease lead to the conclusion that the epidemic or pandemic cause can determine the resulting form or type of disease, though local and temporary causes may determine a different form yet impressed by the great law of epidemic influence." So it has been in the diseases of endemic origin; they are impressed by a more powerful law, and show its existence throughout all its phases. We might adduce more evidence were it needed upon this question, and we now simply say that we have travelled over all the sources of evidence, no doubt in an imperfect manner, yet it seems to us with sufficient bearing, upon the question at issue. I regard the acceptance of the facts in this paper as necessary to the proper comprehension of diseases of this era.

[DR. FREDERICK J. BROWN, of Rochester, Eng., in a letter to the Editor of the *Medical Times and Gazette* (Aug. 4, 1866), gives the following as "an unanswerable argument" in favour of change of type:—

> "Let me say that country labourers that used to be bled every spring thirty years since found themselves a few years later fainting after four ounces, whilst they formerly could lose sixteen ounces and walk miles without any sign of faintness. These are cases of people in health: therefore they are free from the fashions of sickness—treatment. The younger relatives and neighbours of these countrymen were similarly affected by bleedings: therefore it was not a case of men growing older and not tolerating bleeding from that cause."

Connected as we have been with the profession for half a century, we can testify from personal observation as to the change in type which diseases have undergone within that period; and of those who remain of our early contemporaries, we have not conversed with one who has not concurred with us as to this fact.—EDITOR.]